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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/037,432	01/04/2002	Mailvaganam Mahendran	02-20	7749

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ANDREW ALEXANDER & ASSOCIATES
3124 KIPP AVENUE
P.O. BOX 2038
LOWER BURRELL, PA 15068

EXAMINER

MENON, KRISHNAN S

ART UNIT	PAPER NUMBER
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1723

DATE MAILED: 10/14/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/037,432

Applicant(s)

MAHENDRAN ET AL.

Examiner

Krishnan S Menon

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-- The MAILING DATE of this communication appears on the cover sheet with the corresponding address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 January 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 20-71 is/are pending in the application.
- 4a) Of the above claim(s) 46 and 47 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 20-45 and 48-71 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Election/Restrictions

Restriction to one of the following inventions is required under 35 U.S.C. 121:

- I. Claims 20-45 and 48-71, drawn to separation membrane, classified in class 210, subclass 321.87.
- II. Claims 46-47, drawn to process of making separation membranes, classified in class 156, subclass 244.13.

The inventions are distinct, each from the other because of the following reasons:

Inventions II and I are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the process as claimed could be used to make other materially different products such as reinforced plastic capillary tubings.

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

Because these inventions are distinct for the reasons given above and the search required for Group II is not required for Group I, restriction for examination purposes as indicated is proper.

During a telephone conversation with Andrew Alexander, attorney for applicant, on 9/16/03 a provisional election was made without traverse to prosecute the invention of group I, claims 20-45 and 48-71. Affirmation of this election must be made by applicant in replying to this

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Office action. Claims 46 and 47 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Applicant is reminded that since the product claims are elected, process claims would be allowable if product claims are found allowable and if the process claims contain all the limitations or are dependent on the product claims.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 20-38 and 43-45 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Brun et al (US3,948,781).

Brun teaches a support for hollow fiber membranes made of a fabric of shrunken yarn, and a porous membrane coated on the fabric suitable as a separation membrane (col 3 lines 9-67) as in claim 20. The shrunken length of the support could be adjusted to at least 1% as in claim 22, between 1 and 20% as in claim 23 and between 1 and 8% as in claim 24 (col 4 lines 10-20: length adjustable by process). The support is flexible as in claim 25 (examples).

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Claims 21 and 26: Re extension at break as in claims 21 and 26, Brun is silent, but this is inherent in the property of the material of the support (polyester or polyamide) – same material and shrunk in similar conditions (The claiming of a new use, new function or unknown property which is inherently present in the prior art does not necessarily make the claim patentable. *In re Best*, 562 F.2d, 1252, 1254, 195 USPQ 430, 433 (CCPA 1977).).

Claims 27,28: The air permeability is not disclosed by Brun, but is an inherent property, since the material of the braid (polyester, polyamide), weave, and the processing (pre-shrinking) conditions (see examples, col 3 lines 29-38 and col 4 lines 13-17) are similar (in re Best).

Claims 33-35: the yarns are made of polyester, polyamide, etc : col 3 lines 18-28, 50-67).

Claims 36-38: supports are woven tubular braid, with diameters less than 3 mm and thickness about 0.2-1 mm (examples)

Claim 43: the multifilament yarn ends are non-plied, with 1-3 multifilament ends (col 3 lines 29-33: Brun does not say anywhere that the ends are plied, therefore, they could be non-plied)

Claim 44: the porosity of the porous substance is suitable for micro or ultra – filtration membranes (col 3 lines 50-67).

Claim 45: moisture gain is an inherent property of the material (In re Best)

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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1. Claims 29-32 and 42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brun (781)

Claims 29-32: Brun teaches all the limitations of claim 20. Claims 29-32 add further limitations of thickness of the porous substance on the support, on which Brun is silent. However, this is a result-effective variable that is within the skill of one of ordinary skill in the art at the time of the invention. Discovery of an optimum value of a result effective variable in a known process is ordinarily within the skill of the art. In re Boesch and Slaney, 205 USPQ 215 (CCPA 1980); In re Antonie, 559 F.2d 618, 195 USPQ 6 (CCPA 1977); In re Aller, 42 CCPA 824, 220 F.2d 454, 105 USPQ 233 (1955). The support is not embedded in the porous substance (examples: coated or deposited 'on').

Claim 42: Brun teaches all the limitations of claim 38. Claim 42 adds further limitation of the pattern of the weave, on which Brun is silent. However, since Brun does not specify the weave pattern, it would be obvious to one of ordinary skill in the art at the time of invention to chose a standard weave such as 'regular' or 'diamond' weave.

2. Claims 39-41 and 48-71 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brun (781) in view of Mailvaganam et al (US 5,472,607).

Claims 39-41: Brun teaches all the limitations of claims 20, 21 and 38. Instant claims add further limitations of 1-3 filament ends, and number of filaments and denier of multifilament yarns, which Brun teaches (see examples, col 3 lines 28-33), and the picks/in. on which Brun is silent. Mailvaganam teaches the number of picks for the tubular support for hollow fiber membranes (col 8 lines 13-32). It would be obvious to one of ordinary skill in the art at the time of invention to use the teaching of Mailvaganam in the teaching of Brun for the number of picks in the braids because Brun is silent on it.

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Claim 48: Brun teaches a support for hollow fiber membranes made of a fabric of shrunken yarn, and a porous membrane coated on the fabric suitable as a separation membrane (col 3 lines 9-67). The air permeability is not disclosed by Brun, but is an inherent property, since the material of the braid, and the processing (pre-shrinking) conditions (see examples and col 4 lines 13-17) are similar (in re Best). Brun does not teach the crosses/inch. Mailvaganam teaches the number of picks for the tubular support for hollow fiber membranes (col 8 lines 13-32). It would be obvious to one of ordinary skill in the art at the time of invention to use the teaching of Mailvaganam in the teaching of Brun for the number of picks in the braids because Brun is silent on it.

Claims 49-71 depend from claim 48, and add further limitations as follows:

Claim 49: Brun teaches Yarns and ends in the examples.

Claim 50: Brun teaches 1-3 filament ends, and number of filaments and denier of multi-filament yarns (see examples, col 3 lines 28-33), but does not teach the picks/in. Mailvaganam teaches the number of picks for the tubular support for hollow fiber membranes (col 8 lines 13-32). It would be obvious to one of ordinary skill in the art at the time of invention to use the teaching of Mailvaganam in the teaching of Brun because Brun is silent on the number of picks in the braid.

Claim 51: adds further limitation of the pattern of the weave, on which Brun in view of Mailvaganam is silent. However, since Brun in view of Mailvaganam does not specify the weave pattern, it would be obvious to one of ordinary skill in the art at the time of invention to chose a standard weave such as 'regular' or 'diamond' weave.

Claim 52: the multifilament yarn ends are non-plied, with 1-3 multifilament ends (Brun-col 3 lines 29-33: Brun in view of Mailvaganam does not say anywhere that the ends are plied, therefore, they could be non-plied)

Claim 53: The air permeability is not disclosed by Brun in view of Mailvaganam, but is an inherent property, since the material of the braid, and the processing (pre-shrinking) conditions (see examples and col 4 lines 13-17) are similar (in re Best).

Claims 54-55: Membrane is pre-shrunk to a stable length (col 4 lines 10-20). Re extension at break, Brun is silent, but this is inherent in the property of the material of the support – same material and shrunk in similar conditions.

Claims 56-60: The shrunken length of the support could be adjusted to at least 1%, between 1 and 20% and between 1 and 8% (col 4 lines 10-20: shrunken length is adjustable). The support is flexible, macroporous and tubular (examples).

Claims 61-63: Re thickness of the porous substance on the support, Brun is silent. However, this is a result-effective variable. Discovery of an optimum value of a result effective variable in a known process is ordinarily within the skill of the art. (In re Boesch and Slaney, ...)

Claim 64: The support is not embedded in the porous substance (examples: coated or deposited 'on').

Claims 65-67: the porous substance is a polyester or polyamide (col 3 lines 23-28).

Claims 68-69: supports are woven tubular braid, with diameters less than 3 mm and thickness about 0.2-1 mm (examples)

Claims 70: micro or ultrafiltration membrane (col 3 lines 50-67)

Claim 71: Moisture gain is an inherent property of the material (in re Best).

Conclusion

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Krishnan S Menon whose telephone number is 703-305-5999. The examiner can normally be reached on 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wanda L Walker can be reached on 703-308-0457. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

Krishnan Menon
Patent Examiner


W. L. WALKER
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700